AMENDMENTS TO THE CLAIMS

1. (Currently amended) A method of retrieving channel characteristics of a Digital Subscriber Line (DSL) channel having a plurality of bins, comprising the steps of:

Determining, at tip and ring of a copper loop, and storing in data registers on a per bin basis a channel frequency response measurement and a noise measurement measured at initialization at a first end of the DSL channel;

Determining, at tip and ring of a copper loop, and storing in data registers on a per bin basis a signal-to-noise measurement measured at show time at the first end of the DSL channel; and

transmitting the channel frequency response measurement, the noise measurement and the signal-to-noise measurement from the first end to a second end of the DSL channel.

2. (Previously presented) A method as claimed in claim 1 wherein the first end is a central office (CO) end, and the second end is a customer premise equipment (CPE) end.

3. (Previously presented) A method as claimed in claim 1 wherein the DSL channel is asymmetrical.

4. (Previously presented) A method as claimed in claim 1 wherein the first end is a customer premise equipment (CPE) end, and the second end is a central office (CO) end.

5. (Previously presented) A method as claimed in claim 1 wherein the DSL channel is non-overlapping.

6. (Previously presented) A method as claimed in claim 1 wherein the DSL channel is an Asymmetric Digital Subscriber Line (ADSL) channel.

7. (Previously presented) A method as claimed in claim 1 wherein the DSL channel is a very high bit-rate DSL (VDSL) channel.

8. -9. (cancelled)

10. (Currently amended) An apparatus for retrieving channel characteristics of a Digital Subscriber Line (DSL) channel having a plurality of bins, the apparatus comprising:

a first circuit for determining at tip and ring of a copper loop, and storing in data registers on a per bin basis a channel frequency response measurement and a noise measurement measured at a first end of the DSL channel;

a second circuit for determining at tip and ring of a copper loop, and storing in data registers on a per bin basis a signal-to-noise measurement measured at the first end; and

a transmitter for transmitting the frequency response measurement, the noise measurement and the signal-to-noise measurement from the first end to a second end of the DSL channel.

11. (Previously presented) An apparatus as claimed in claim 10 wherein the first end is a central office (CO) end, and the second end is a customer premise equipment (CPE) end.

12. (Previously presented) An apparatus as claimed in claim 10 wherein the DSL channel is asymmetrical.

13. (Previously presented) An apparatus as claimed in claim 10 wherein the first end is a customer premise equipment (CPE) end, and the second end is a central office (CO) end.

14. (Previously presented) An apparatus as claimed in claim 10 wherein the DSL channel is non-overlapping.

15. (Previously presented) An apparatus as claimed in claim 10 wherein the DSL channel is an Asymmetric Digital Subscriber Line (ADSL) channel.

16. (Previously presented) An apparatus as claimed in claim 10 wherein the DSL

channel is a very high bit-rate DSL (VDSL) channel.

17. -30. (Cancelled)

31. (Currently amended) A storage medium readable by a computer encoding a computer program for execution by the computer to carry out a method for retrieving channel characteristics of a Digital Subscriber Line (DSL) channel having a plurality of bins, the computer program comprising :

code means for determining at tip and ring of a copper loop, and storing in data registers on a per bin basis a channel frequency response measurement and a noise measurement measured at initialization at a first end of the DSL channel;

code means for determining at tip and ring of a copper loop, and storing in data registers on a per bin basis a signal-to-noise measurement measured at show time at the first end of the DSL channel; and

code means for transmitting the channel frequency response measurement, the noise measurement and the signal-to-noise measurement from the first end to a second end of the DSL channel.

32. (Previously presented) A computer readable medium as claimed in claim 31 wherein the first end is a central office (CO) end, and the second end is a customer premise equipment (CPE) end.

33. (Previously presented) A computer readable medium as claimed in claim 31 wherein the DSL channel is asymmetrical.

34. (Previously presented) A computer readable medium as claimed in claim 31 wherein the first end is a customer premise equipment (CPE) end, and the second end is a central office (CO) end.

35. (Previously presented) A computer readable medium as claimed in claim 31 wherein the DSL channel is non-overlapping.

36. (Previously presented) A computer readable medium as claimed in claim 31 wherein the DSL channel is an Asymmetric Digital Subscriber Line (ADSL) channel.

37. (Previously presented) A computer readable medium as claimed in claim 31 wherein the DSL channel is a very high bit-rate DSL (VDSL) channel.

38. (Previously presented) The method as claimed in claim 1, wherein the DSL channel frequency response, $H_R(f)$ is represented by a normalized complex number a(i) +jb(i).

39. (Cancelled).

40. (Cancelled).

41. (Previously presented) The apparatus as claimed in claim 10, wherein the channel frequency response, $H_R(f)$ is represented by a normalized complex number a(i) +jb(i).

42. (Cancelled).

43. (Cancelled).

44. (Previously presented) The method as claimed in claim 1, further comprising the step of analyzing time dependent changes in cross talk levels and line attenuation at the second end of the DSL channel.

45. (Previously presented) The apparatus as claimed in claim 10, further comprising an analyzer at the second end for analyzing time dependent changes in cross talk levels and line attenuation.

46. (Previously presented) The storage medium as claimed in claim 31, further comprising code means for analyzing time dependent changes in cross talk levels and line attenuation at the second end of the channel.

47. (Cancelled)

48. (Previously presented) A method as claimed in claim 1 wherein the DSL channel is overlapping.

49. (Previously presented) An apparatus as claimed in claim 10 wherein the DSL channel is symmetrical.

50. (Previously presented) An apparatus as claimed in claim 10 wherein the DSL channel is overlapping.

51. (Currently amended) A method of retrieving channel characteristics of a Digital Subscriber Line (DSL) channel having a plurality of bins, comprising the steps of:

determining at tip and ring of a copper loop, and storing in data registers on a per bin basis channel a frequency response measurement and a noise measurement measured at a first end of the DSL channel;

determining at tip and ring of a copper loop, and storing in data registers on a per bin basis a signal-to-noise measurement measured at the first end of the DSL channel; and

transmitting the channel frequency response measurement, the noise measurement and the signal-to-noise measurement from the first end to a second end of the DSL channel.

52. (Currently amended) A storage medium readable by a computer encoding a computer program for execution by the computer to carry out a method for retrieving channel characteristics of a Digital Subscriber Line (DSL) channel having a plurality of bins, the computer program comprising :

code means for determining at tip and ring of a copper loop, and storing in data registers on a per bin basis a channel frequency response measurement and a noise measurement measured at a first end of the DSL channel;

code means for determining at tip and ring of a copper loop, and storing in data registers on a per bin basis a signal-to-noise measurement measured at the first end of the DSL channel; and

code means for transmitting the channel frequency response measurement, the noise measurement and the signal-to-noise measurement from the first end to a

second end of the DSL channel.

53. (Previously presented) A method as claimed in claim 1 wherein the channel is symmetrical.

54. (Previously presented) A method as claimed in claim 1 wherein the channel is overlapping.

55. (Previously presented) An apparatus as claimed in claim 10 wherein the channel is symmetrical.

56. (Previously presented) An apparatus as claimed in claim 10 wherein the channel is overlapping.